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PROJECT SUMMARY

ATLANTIC FISHERIES DEVELOPMENT

Newfoundland Region
NO. 15, MARCH 1989

THE EFFECTIVENESS OF FEATHER HOOKS IN LONGLINE FISHING OPERATIONS

Fisheries and Oceans Pêches et Océans

Canada

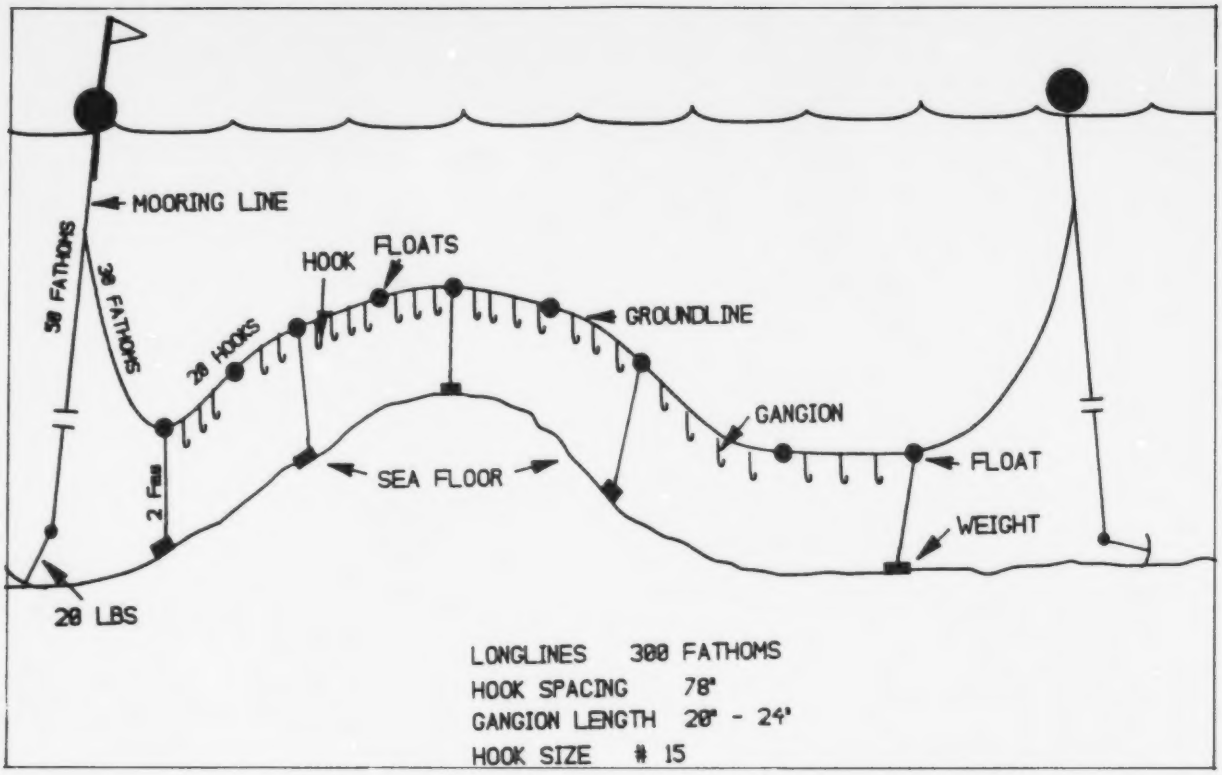

Figure 1 Moored Longlines (Fishing Mode)

PURPOSE

To determine the catch efficiency of feather hooks using moored, monofilament longlines.

GENERAL INFORMATION

In an effort to offset siginficant decreases in fish catches experienced by Newfoundland inshore fishermen in recent years, new technological innovations are being introduced to assist fishermen in overcoming problems associated with low income brought about by reduced catches.

Many of Newfoundland's inshore fishermen have abandoned traditional longline methods, using baited hooks and nylon groundlines, and have switched to feather and monofilament moored groundlines.

During the months of August and September, 1988, the Fisheries Development Division, Department of Fisheries and Oceans, initiated a project to assess the effects of this new fishing development on fish catches.

The main objective of this project was to test and demonstrate the catch effectiveness of this simple technology to improve small boat profitability.

FISHING AREAS

Portugal Cove South, Renews and Lumsden were the areas selected for the project. These areas were considered suitable as fishermen from these locations had demonstrated a keen interest in this longline technology, and had previously fished this type of moored longline gear on a limited basis.

PROJECT DESCRIPTION

In all, 46,100 hooks were fished for a period of 42 days in the three areas listed above, with an equal number of feather hooks and baited hooks being used.

Each area of operation was studied seperatly with respect to data collection and analysis. Information was recorded on the number of fish caught and the average weight of the catch on each type of hook.

All skippers taking part in the project used a different number of hooks, but they fished equal amounts of the two types of hooks. This allowed comparative data to be accumulated in each location on the performance of the feather hooks and the baited hooks in similar situations.

The water in which the gear was set ranged from 15-26 fathoms in depth. If catches were low the gear could be moved to another position in the same general area.

FISHING GEAR

All groundlines were 180kg (400lbs) test monofilament lines rigged with swivels and 45-55kg (100-120 lbs) test monofilament gangions. Gangion lenght was left to the skipper's discression with gangion ranging from 1.10 to 2.00 m.

The hooks used in Portugal Cove South and Lumsden were #15 traditional "J" hooks while those used in Renews were #12 circle hooks.

Two 127 mm (5") torpedo gillnet floats and a 1.5 - 2.5 kg (3-5lbs) weight(s) were attached to the groundlines at varying lenghts to keep the gear 2-3 fathoms off the seabed.

Hooks were attached in consecutive arrays of 50 feather hooks and 50 baited hooks (markerel or squid). The lines were anchored at both ends using the weights described.

RESULTS

As indicated in table 1, for each fish caught on the baited hooks, 1.32 were caught on feather hooks. The catch rates for the feather hooks and baited hooks were one fish every 3.79 hooks and every 5.01 hooks, respectively. Approximately 120 more baited hooks would be required to catch 100 fish, in comparison to the feather hooks. Higher catches were also caught on feather hooks after several nights of continuous fishing. In the sections where the feather hooks and the baited hooks joined, fishermen observed a greater number of fish were caught by feather hooks.

In Lumsden, many different colours for feather hooks were tried by skippers, including red, green, blue, yellow and black. It was determined the red and blue provided the best catch rates. The lowest catches were produced by yellow coloured feather hooks.

DISCUSSION

Overall, the project determined that feather hooks provide several financial and time saving benefits to inshore fishermen. These include:

1. No bait required (therefore the cost of bait is eliminated).

2. The time required to haul feather hooks is less than that required for baited hooks, making it possible to haul more hooks for the same period, resulting in increased catches.

3. Feather hooks continue to fish as long as they are in the water, where as baited hooks only fish as long as the bait remains on the hook, or until the bait spoils.

4. The cost of producing hooks is relatively inexpensive, and fishermen can make up their own with little effort.

TABLE 1

Fishing Area	No. of Hooks	Weight of fish		Average Catch/Hook		Feather Hooks % of Catch
		Feather	Baited	Feather	Baited	
Portugal Cove South	14 600	3967kg	2112kg	.54kg	.29kg	65%
Renews	13 500	3494kg	2853kg	.52kg	.42kg	55%
Lumsden	18 000	2474kg	2394kg	.28kg	.27kg	51%

On an overall scale, in all areas where the project was conducted, the feather hook proved to be an acceptable substitute for baited hook. Over the 42-day period the feather hook outfished the baited hook taking 57% of the total catch.

For the most part, for each fish caught on the baited hooks, 1.32 were caught on feather hooks. The catch rates for the feather hooks and the baited hooks were one fish every 3.79 hooks and one every 5.01 hooks, respectively. Approximately 120 more baited hooks would be required to catch 100 fish, in comparison to the feather hooks. Higher catches were also caught on the feather hooks after several nights of continuous fishing. In the sections where the feather hooks and the baited hooks joined, fishermen observed a greater number of fish were caught by the feather hooks.

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Although the feather hooks did not consistently perform during the second haul in the same day, catches still proved to be better than the baited hooks.

The project proved that time, cost and effort are considerably reduced by using feather hooks. These factors translate into substantial savings and increased benefits to fishermen.

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